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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,863	09/18/2001	Johan Olof Anders Robertsson	US57.0326-WO	2920

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Schlumberger Doll Research
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EXAMINER	
LE, TOAN M	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 07/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/936,863	Applicant(s) ROBERTSSON ET AL.	
	Examiner Toan M Le	Art Unit 2863	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-29 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikelle et al..

Referring to claims 1, 12, 18, and 24, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium comprising the steps of (col. 7, lines 1-3): receiving pressure data representing at least the pressure in the fluid medium at a first location and a second location, the first location being in close proximity to the second location (col. 7, lines 1-7; figure 1); receiving vertical particle motion data representing at least the vertical particle motion of acoustic energy propagating in

the fluid medium at a third location and a fourth location, the third location being in close proximity to the fourth location, and the first, second, third, and the fourth locations being within a spatial area (col. 7, lines 1-7; figure 1); calculating a plurality of spatial filter coefficients based in part on the velocity of sound in the fluid medium, the density of the fluid medium and a plurality of acquisition parameters, thereby creating a spatial filter which is designed so as to be effective at separating up and down propagating acoustic energy over a range of non-vertical incidence angles in the fluid medium (col. 7, lines 12-14; equations 3-6); applying the spatial filter to the vertical particle motion data to generate filtered particle motion data (col. 7, lines 12-14; equations 4-6); combining the filtered particle motion data with the pressure data to generate separated pressure data, the separated pressure data having up and down propagating components separated; and analyzing at least part of the up and down propagating component of the separated pressure data, and wherein the vertical particle motion data is measured using one or more multi-component streamers or vertical cables (col. 7, lines 12-18; equations 3-6; figures 3-4).

As to claim 2, Ikelle et al. disclose a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the acquisition parameters include the temporal sampling interval, the spatial sampling interval, and the number of independent locations at which the pressure and vertical particle motion data are measured (col. 6, lines 64-65; col. 7, lines 27-28).

Referring to claims 3, 14, 20, and 26, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium

wherein the vertical particle motion data is measured using one or more multi-component streamers (col. 8, lines 19-23).

As to claims 4, 15, 21, and 27, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the particle velocity of the acoustic energy (col. 7, lines 29-31).

Referring to claims 5, 16, 22, and 28, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical pressure gradient of the acoustic energy (equations 4-6).

As to claims 6, 17, 23, and 29, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the pressure gradient is measured using at least two parallel streamer cables in close proximity and vertically offset from one another (col. 3, lines 44-46).

Referring to claim 7, Ikelle et al. disclose a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical displacement of the acoustic energy (col. 4, lines 37-38).

As to claim 8, Ikelle et al. disclose a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the vertical particle motion of the acoustic energy represented in the vertical particle motion data is the vertical acceleration of the acoustic energy (equation 4-6).

Referring to claims 9, 13, 19, and 25, Ikelle et al. disclose a method and a computer-readable medium incorporated into the method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the distance between the first location and the second location and the distance between the third location and the fourth location is less than the Nyquist spatial sampling criterion (col. 1, lines 61-64).

As to claim 10, Ikelle et al. disclose a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the spatial area is substantially a portion of a line, and the range of non-vertical incidence angles includes substantially all non-horizontal incidence angles within a vertical plane that passes through the portion of line (figure 1).

Referring to claim 11, Ikelle et al. disclose a method of reducing the effects in seismic data of downward propagating reflected and scattered acoustic energy traveling in a fluid medium wherein the spatial area is a portion of a substantially planar region, and the range of non-vertical incidence angles include substantially all non-horizontal incidence angles (figure 3).

Remarks:

Response to Arguments

Applicant's arguments filed 4/29/03 have been fully considered but they are not persuasive.

Referring to claims 1-29, applicants argue that "The receivers used according to Ikelle et al. are positioned at the sea bottom and the data received by said receivers are not propagating in a fluid medium, whereas, according to the invention, the receivers, and, in particular, the vertical motion data receivers, are part of one or more multi-component streamers or vertical cables and the acquired data are propagating through a fluid medium".

Ikelle et al. disclose data received by receivers are propagating in a fluid medium (water) and the vertical motion data is measured using one or more multi-component streamers or vertical cables (equations 3-6; figures 1-2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 5,524,100 to Paffenholz U.S. Patent No. 5,621,700 to Moldoveanu

U.S. Patent No. 5,581,514 to Moldoveanu et al.

THIS ACTION IS MADE FINAL.

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0655.

Toan Le

June 20, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800